
Braided learning: an emerging process observed in e-communities of practice

C.J. Preston

School of Culture, Language, Communication
Institute of Education
University of London
20 Bedford Way, WC1H 0AL, UK
E-mail: c.preston@ioe.ac.uk

Abstract: This discussion paper explores the emergent theory of Braided Learning observed in the online communication within a mature professional 'Communities of Practice' (CoPs) (Wenger, 1992; 2002; 2004). The focus of the study is the online practice of the international MirandaNet Fellowship, which was established in 1992. Evidence of the Wenger approach to learning in the history of MirandaNet is contrasted and compared with the linear five-step model that Salmon (2000; 2002) developed in tutoring online business courses. In the paper, an example of a multi-authored text from the Mirandalink, the internal listserv, is investigated to provide evidence of new kinds of collaborative learning. One key skill that is found amongst members is the e-facilitation of collaborative learning. The conclusions indicate that over time online engagement can provide professionals with a thriving community. A sixth step in professional learning is discovered, which is when the CoP members reinterpreted jointly owned online texts to use in the process of influencing local, national and international agendas.

Keywords: Community of Practice; CoP; online learning; action research; practice-based research; learning theory; teaching practice.

Reference to this paper should be made as follows: Preston, C.J. (2008) 'Braided learning: an emerging process observed in e-communities of practice', *Int. J. Web Based Communities*, Vol. 4, No. 2, pp.220–243.

Biographical notes: Christina J. Preston advocates the application of Information and Communication Technology (ICT) as a catalyst for change in teaching and learning. She is the Founder and Chair of the international MirandaNet Fellowship established in 1992 (www.mirandanet.ac.uk). MirandaNet was established in response to a need expressed amongst teachers for a supportive community of practice passionate about the exploration of the potential of digital technologies in teaching and learning. Recent research and development projects have focused on innovative models for ICT and Continuing Professional Development (CPD) based on practice-based research and building international web-based communities of practice. Awards for developing transnational community exchanges between teachers and students include the European Union of Women Humanitarian Achievement Award (1998), a Humanitarian Medal from the World Academic Council, Bulgaria (2000 – Paris) and the Trnkova Medal from the Czech Technical University, Prague, Czech Republic (2001).

1 Introduction

The purpose of this paper is to provide new knowledge about how teachers learn online in a mature professional organisation by investigating the practice of the international MirandaNet Fellowship. Since the Fellowship was established in 1992, members from education, government and industry have joined this independent professional organisation because they are passionate about the use of digital technologies in the transformation of teaching and learning. Although these Fellows are focusing on the uses of digital technologies in education it has taken nearly a decade to establish effective online learning within the community.

The same slow growth of capacity can be observed in England overall where it has not proved easy to introduce online learning to the teaching profession. For example, national efforts to introduce online learning to the UK teachers from 1999–2003 had very limited success (Leask, 2002; Preston, 2005). The main reason was the failure of the software when large numbers of participants come online. However, an underlying cause was that when the National Opportunities Fund training project planning began in 1998, the teacher educators and the advisers setting up these courses had no experience of good online practice. There were few relevant models and theories in education to guide them and little established practice in education to draw on. In addition, there were no funded Continuing Professional Development (CPD) programmes for the advisers. Mistakes were inevitable when so little was known about teachers' practice online.

In 2000, Salmon published a five-step model based on her online teaching experience, which was important in identifying the five steps of learning from unfamiliarity to mastery of the learning online. This model was based on the practice observed amongst students on online business courses. The first four steps are:

Step 1 the challenges of *access and motivation*

Step 2 instigating *online socialisation*

Step 3 periods of *information exchange*

Step 4 more sophisticated *joint knowledge building online*.

The fifth step, *development*, is the collaborative knowledge building process that Salmon warns often falls away. The reason is that the students are too busy working alone to assimilate what they have already learnt from others on the course. They need this time to build individual constructs to assist them in passing the exam (Salmon, 2000; 2002). Once this exam is over there is little motivation to rejoin the course group.

In *Beyond Collaboration*, Cuthell, a MirandaNet senior Fellow, emphasises the personal nature of these learning steps (Figure 1).

In this paper, I argue, like Cuthell and Salmon, that this diminution of collaborative learning at the end of an online course is the inevitable result of providing online courses associated with an accreditation. The result from this traditional model for learning is that what has been assimilated by the group, and could be useful to other professionals, is lost in the pressure for personal accreditation.

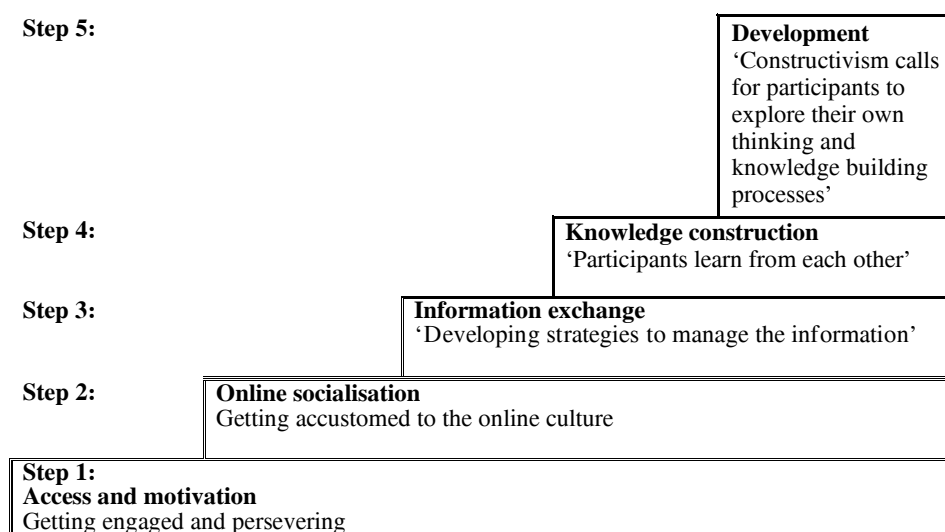
This study for teacher educators and advisors demonstrates how the collaborative nature of learning in the fifth step can be maintained and provides some evidence about what kind of learning might take place beyond the fifth step in a community of professional learners which has a longer life. Online technologies have extended

these learning opportunities in professional communities as well as released them from geographical restrictions. In particular, a MirandaNet online text is analysed to demonstrate the role of collaborative knowledge building in tackling the immediate challenge to educators of social software on school networks. The analysis indicates how the learning leads to action. Is this the sixth step for learners online?

Figure 1 Cuthell's adaptation of Salmon's model for a MirandaNet course in e-facilitation

Five-step Theory (Salmon, 2000)

(This is about personal learning)



Source: Cuthell (2005)

The paper takes this form. In this introduction, the background to the research has been outlined. In Section 2, *Communities of practice – a learning process*, the ways in which the Fellowship qualifies as a 'Communities of Practice' (CoP) are discussed (Lave and Wenger, 1991). Reference is also made to cross-membership and cross-posting between the Fellowship and other CoPs in the same broad subject domain. Particular attention is paid in this section to the ways in which the ICT CPD models that have been offered within MirandaNet over the last 14 years relate to the Salmon five-step model. The main thrust of the discussion is to identify particular online Fellowship practice which might illustrate Salmon's fifth and final development stage, and beyond. Section 3 covers *Research Methodology*. The selected online text in Section 4 is selected to highlight some key characteristics of the online text in part one and the roles of the facilitators in part two. In *Discussion*, Section 5, the findings are discussed. In *Conclusions* the implications for the design of ICT CPD online programs build up to a theory about the nature of this emergent stage of online learning.

2 Communities of practice – a learning process

MirandaNet has been cited as a CoP with ‘an active and passionate core’ (Stuckey, in press, p.66). UNESCO has also described MirandaNet as a successful ‘community of practice’ that effects change in teaching and learning worldwide and uses digital access to provide a platform for the disenfranchised:

“Such collaborative problem solving is important to many ICT teacher educators who have relatively little access to technical support or to view new developments. Visits between countries have strengthened community members’ resolve. The exchange of information is two way, as it flows from the wealthy to the less well resourced and back again.” (Resta, 2002, p.29)

This term ‘CoP’ has been evolving since Lave and Wenger (1991) coined the term in 1991. They acknowledge that the phenomenon is a human process that has been operating for centuries like the medieval craft guilds. However, newly explored in an academic context, the concept provides a useful perspective on knowing, learning and knowledge building in professional life.

In a summary of his position on CoPs in 2004, Wenger (2004) explains that:

“Communities of practice are formed by people who engage in a process of collective learning in a shared domain of human endeavour: a tribe learning to survive, a band of artists seeking new forms of expression, a group of engineers working on similar problems, a clique of pupils defining their identity in the school, a network of surgeons exploring novel techniques, a gathering of first-time managers helping each other cope. In a nutshell: communities of practice are groups of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly.”

Wenger points out that this definition allows for, but does not assume, intentionality: learning can be either the reason the community comes together or an incidental outcome of member’s interactions. He considers three characteristics are crucial in defining a CoP:

- 1 *the domain of interest* shared by the members
- 2 *the community* in which members engage in joint activities and discussions, help each other, and share information in order to build relationships that enable them to learn from each other
- 3 *shared practice* that is stored in a repertoire of resources: experiences, stories, tools and ways of addressing recurring problems.

The MirandaNet Fellowship qualifies as a CoP because each of Wenger’s three characteristics are embedded in the Fellows’ practice. In the first place there is a clear ‘domain of interest’, the use of digital technologies in education. Members of the ‘community’ engage in a series of online and face to face activities and discussions, help each other, and share information in order to build relationships that enable them to learn from each other. This model of learning is the opposite of the traditional approach to learning in which the learning style is formal and the learner is a passive imbiber of information selected by teachers. On the other hand, in this progressive CoP model,

learning is a discovery. The learning style is informal and the learners are actively selecting what they need to know. This accords with professional views about teachers being active professionals closely involved in the development of policy and practice, like doctors (MacGilchrist *et al.*, 1997; Sachs, 2003).

The Fellowship celebrates the professional learning by awarding scholars a fellowship when they publish in the knowledge base. This 'shared practice' is stored in several ways in the web knowledge base which is open to visitors. Much of the day-to-day communication takes place in the listserv, called mirandalink, which is not open to non-members. Webcasts and online forums, for instance, are used to capture ongoing developments in seminars and debates. Summaries of the internal discussion listserv called mirandalink are also archived. Other contributions to the knowledge base over the years are traditional publications on paper which are also stored on the web. More than one and a half thousand page requests are made to access this practitioner-authored knowledge every day, which indicates the value of the resources for other educators. Teachers have developed some of the resources as a result of any partnership with companies who have supplied software, hardware or services to be investigated by the Fellowship. These company partners have equal rights in the Fellowship to join the debates with educators.

Wenger first studied CoPs in companies, but later he makes an important distinction between the aims of CoPs in education and in business (2004). Wenger observes that focusing on communities of practice adds a layer of complexity to the organisation, but it does not fundamentally change what the business is about. In schools, changing the learning theory is a much deeper transformation. This, he points out, will inevitably take longer. Since he believes that it is life itself that is the main learning event, he is keen that CoPs should offer an opportunity for both teachers and students to engage with their local, national and international world through extensions of their CoP. Another important difference between business and education which is relevant to MirandaNet is that membership of this professional organisation is voluntary and the sharing of knowledge is altruistic. In a company there may be some compulsion to contribute knowledge.

This selection of online text in Section 3 includes the comments of company partners and references to the practice of two related CoPs, Naace and ITTE. Because there is a significant level of cross-membership and cross-posting between these organisations, Wenger might refer to them as a 'constellations of CoPs'. He defines this as "a set of multiple communities related by subject matter, the use of digital technologies in education" (Wenger *et al.*, 2002, p.140). In this paper these organisations will be called ECoPs because the key learning is online. The main perspectives of these three ECoPs are different, but complementary. The MirandaNet Fellows are sharing knowledge about implementing digital technologies across the curriculum in the transformation of learning internationally; Naace is focused on the detail of implementing the ICT Curriculum and the wider issues of transforming education, not just through teaching and learning, but also in administration and managing information throughout the school; ITTE is an organisation of teacher educators who have the responsibility of teaching teachers about ICT as a subject and across the curriculum.

3 Three different models for ICT CPD

Recently, Wenger has acknowledged that new technologies such as the internet have helped to extend the reach of human interactions beyond the geographical limitations of traditional local communities. On the other hand he points out that the increase in flow of information does not obviate the need for community. In fact, it expands the possibilities for community and calls for new kinds of communities based on shared practice. As an example he points towards development agencies who now see their role as conveners of such communities, rather than as providers of knowledge. Most of all in the context of digital technologies, Wenger emphasises the knowledge building among practitioners which is facilitated by online access of all the members (Wenger, 2004). This paper concentrates on CoPs with a strong online presence. These groups are, therefore, defined as 'E-communities of Practice' (ECoPs).

ECoPs are now a widely recognised means of transferring and developing professional knowledge and skill beyond the scope of traditional courses. Distinctions are made in this paper between the kinds of learning opportunity that MirandaNet senior Fellows offers to members, and the learning opportunities that members create for each other. The formal learning opportunities that MirandaNet senior Fellows offered to members first was online courses or modules of the kind that Salmon is exploring. However, Salmon's five stages can be traced in the MirandaNet online practice over several years as well as within the courses. For example, between 1992–1998 online software was unreliable and broadband connectivity was often not available in UK schools. As a result the first step in an online course, to gain access was an important issue. Motivation had to be high to overcome the problems of lack of access and limited skills. Members regularly took three to six months to engage online in a course because of the technical difficulties (Preston, 1995). Online socialisation often faltered because of these challenges. Face to face workshops were an important means of keeping motivation going and of developing 'socialisation' which could continue online. Problems of 'access' and 'motivation' still continue to be a problem for MirandaNet members in many countries where online access is still problematic.

The second kind of learning opportunity is the longer term CPD programme designed to develop the skills and knowledge of the individual professional over a longer period of time. Vries and Kommers (2004) definition of CPD is used here as "a process of continuing development of knowledge, and skills and attitudes of professionals by means of formal and informal learning in the course of practice" (p.117). The single courses or modules that were the first stage are now one element in an ICT CPD programme that can lead to Diplomas, Master and Doctorate awards in conjunction a university that can accredit studies that include multimodal assignments rather than linear essays. The teachers themselves are in charge of their learning program deciding what is relevant to their needs. The Salmon steps of 'information exchange' between students and the more sophisticated period of joint 'knowledge building' are encouraged in these Fellowship ICT CPD programmes by the adoption of a form of 'action research' called 'practice-based research'. There is an academic perception that 'action research', which is better known internationally, can isolate teachers because they are only asked to reflect on activities in on their own classroom. In the 'action research' model, theorists complain that teachers are not required to engage critically with any of the literature. Practice-based

research, is, therefore, a more appropriate pedagogy for a CoP like MirandaNet, because it ensures that the teachers are aware of the literature and practice in their area (Saunders, 2002; Lamb and Simpson, 2003; Whitehead, 2006).

This pedagogy was adopted in the MirandaNet programs from the beginning because teachers gain ownership of their learning by negotiating the subject of their classroom-based research study with their tutors. Usually the context for the whole group is a generic topic like e-learning or the use of interactive whiteboards that requires some input from the tutor. However, there is no set curriculum content to be taught in this kind of learning opportunity. This sets the learning process apart from the kind of course that Salmon is analysing where curriculum content is directed by tutor. In contrast, in practice-based research, the discussion between the tutor and the teacher is focused on what the teacher would like to change in their classrooms and how digital technologies might be used to do this. Their students are sometimes involved in the research as well. This pedagogical approach provides evidence of good classroom practice from the grassroots as well as celebrating what the teachers know and can do (Elliott, 1991; James, 1996; Whitehead, 2006; Whitehead and McNiff, 2006).

The MirandaNet online facilities do not only offer opportunities for teachers to talk to each other in a formal ICT CPD programme, but they also provide the means to exchange information and build knowledge by publishing their case studies in the MN e-journal. This is a different approach to learning from the traditional model in which the case study is marked by the tutor and is kept in a filing cabinet for five years or so.

A prime example of the opposite approach to sharing learning is explored by Cuthell's description of MirandaNet students' views of the five-step Salmon model. Cuthell is investigating the learning process that took place in an online course about the role of e-facilitators in online learning. In this Advanced Diploma model, the MirandaNet members were invited to take the role of a doctoral student who contributes to the field of knowledge by sharing new findings from practice-based research with the other students online. In this way their knowledge is aligned with what is already known. The content of the course which was the process of e-facilitation meant that the students were acting as e-facilitators at the same time as being facilitated by others. This practice-based process enabled all the individuals to construct new knowledge, both with and for others. However, there is a caveat. Cuthell (2005), who adapted the five steps for online learning in Figure 1, measures the ways in which the online course participants matched the outcomes of Salmon's Five Steps:

“Whereas all participants were motivated and worked out how to access the various environments and programs that the course required, all socialized and exchanged information, only 75% of participants were able to construct knowledge for themselves from the forum discussions and the materials their colleagues had found. Only half the group were then able to take that socially constructed knowledge and apply it to a context that related to the ways in which young people learned in school.” (p.8)

Cuthell highlights the implications of these findings for teacher educators who are hoping that online learning will provide an environment where professionals extend their knowledge sharing collaboratively. Whilst all the teachers could engage in the first three stages of this model, fewer were able to construct new knowledge, and fewer still to apply it. However, MirandaNet provides a place where teachers can go on building these collaborative skills. Several online course participants joined the MirandaNet CoP when their case studies were published in an e-journal on e-facilitation. This gave them a

further opportunity to extend their capacity to work collaboratively, even if they had found it hard the first time. Some have augmented their ICT CPD programme by taking more courses, and by acting as voluntary e-facilitators. As a result these course participants are building new knowledge about practice with their colleagues in a way that might not be perceptible to the researcher who is outside the organisation or the external examiner who would find this ability hard to assess.

At this level of learning by sharing practice a third kind of ICT CPD comes into play, which is collaborative, community-focused and voluntary, rather than about the progress of individual learners towards accreditation. This voluntary and informal exchange moves into Salmon's fifth step – the development level – and beyond. In this scenario the development stage is controlled by members and is not linked to any kind of formal qualification. The large majority of the members join the MirandaNet organisation in order to operate in this way online, not to take formal accredited programs. At this level the knowledge building demonstrates a high level of voluntary and informal CPD activity where members decide what they need to know and publish information freely for others online. This activity is not motivated by the need to gain an accreditation or a deadline for an assignment and is not orchestrated by a tutor. The topics for sharing emerge spontaneously from the membership when a current subject enthuses them.

This kind of online voluntary and spontaneous activity accords with Wenger's distinction between a course of training and the development of a learning architecture within a CoP. His point is that the primary purpose is of a CoP is:

“not to design and deliver courses, but rather to develop the learning potential of an organisation. Towards this end a learning architecture combines an infrastructure of engagement, imagination and alignment in learning.”
(Wenger, 1998, p.150)

Section 3 which follows presents the methodological approach to selecting and analysing the online extract which is investigated in Section 4.

4 The methodology

4.1 The perspective of the researcher

The research perspective is ethnographical Adler and Adler have developed methods for peripheral, active and complete members of groups. This method has been adopted because as the founder of MirandaNet and the current Chair, I was engaged in this online debate and helped to implement some of the outcomes. As the researcher, therefore, I can only fall into the 'complete member' category which allows for my emotional commitment to this CoP. 'Complete member' research is justified by Adler and Adler who maintain that in the final analysis only insiders of groups can successfully unravel the intricacies and complexities of human behaviour at this level of sophisticated practice. Some bias is inevitable. This has to be weighed against the insights that insiders might have about the nuances of behaviour and vocabulary that appear in the debate, the unspoken roles of participants and holistic impact of the experience as it links to similar experiences over many years (Adler and Adler, 1987). This account has also been shared with some key members to ensure that it resonates with the experience of the debate by other members. However, in this situation, members would not be expected to agree on how they saw the debate and what it meant to their learning.

4.2 The research questions

The research questions are designed to find evidence of the five-step Salmon's model for online learning within the selected online text created by the MirandaNet CoP. Wenger's three characteristics of a CoP, domain of interests, community and shared practice were also used in the formulation of the questions as they articulate a broader dimension on learning than a course. This merging of theories was intended to provide a rich perspective on the way in which members make use of the artefacts of a mature expert CoP.

These research questions, which are used to interrogate the findings, are:

- How are the CoP members' *access and motivation* restricted by the technologies and the online software design that is available?
- What is the range of perspectives that can be traced in this *community* text?
- Which areas of the CoPs *domain of interest* are covered in the *information exchange* stage?
- How do members build knowledge using *shared practice*?
- What evidence can be found of a *development* step when new knowledge is created collaboratively online?
- Is there a sixth step in the emergence of online learning potential in a mature CoP?

One theme that emerges in the data is the differences between learning as an individual and learning as a group. A second theme is how shared learning develops over time in a mature CoP. A third theme is the role of the researcher who is also a CoP member:

"The conclusion presents thoughts about appropriate research methods in observing the CoP process, potential theory to cover learning after Salmon's fifth stage of the development of online learning and ideas for further research."

4.3 Data collection

The selection of the text to be investigated was determined by the analysis of ICT CPD experience in MirandaNet discussed in Section 2. In order to provide evidence of Salmon's development stage and beyond, the subject had wells up spontaneously from the membership and enthuse the membership rather than being orchestrated by a course tutor and linked to any kind of formal qualification. The collaborative knowledge building effort had to be entirely voluntary. It also had to be clear that MirandaNet members had had the freedom members to decide what they need to know and what they wanted to say. This activity could be subject to a deadline as long as this was not an assignment deadline.

There were a significant number of archived and/or summarised online debates that would qualify under these selection criteria between 2005 and 2007. About six online debates per year reach over 40 posts. These have included:

- What are the advantages to schools of open source software?
- Is ICT skill measurable?

- Is strategic leadership in ICT at risk in the UK?
- What is the value of Interactive Whiteboards in learning achievement?
- Is mapping useful in Visual Learning?

With this plethora of data available the most recent debate was chosen at the time of writing because it demonstrated the most mature practice: 'Web communities for Children – to ban or not to ban?' The postings used in the analysis are selected from this Mirandalink discussion. For ethical reasons all the names have been changed and the community has been asked if the anonymised postings can be used for research.

This kind of data collection in online debate is much easier than other collecting methods like interviews and questionnaires. A member of a community receives all the postings directly into their e-mail box whilst the debate is happening. All the messages are dated and timed automatically. However, it may be necessary to consult the profiles of members to find out more about their professional role.

In this case, over a period of six weeks, more than 50 posts were received. Comments selected here give an indication of the variety of responses and the range of respondents. But the postings ran to 15 pages of closely written text. Only a few short passages are presented here to demonstrate some of the key features but they cannot hope to provide a comprehensive account of all the features of the debate. Other researchers would make different selections.

4.4 Analytical method

The analysis of the online text, aims to capture the essence of a collaborative online text developed by participants in a mature CoP, and to define the process of learning that is taking place online so that teacher educators can benefit from this knowledge in designing online courses. The analysis was based on the principles of grounded theory. Themes were identified during the analysis rather than being decided beforehand (Glaser and Strauss, 1967; Charmaz, 2000). This method is useful in dealing with emergent practices as the researcher is unlikely to be able to predict all the parameters that might occur. In a self-selecting CoP, like MirandaNet, expertise is so high both in subject matter and e-facilitating the debating process that a researcher is unlikely to be able to predict all the research themes which might occur.

5 The case study

5.1 The research context

The text extracts that follow are selected from a particular online debate which focused on teachers' concerns about the presence of social software on school network: 'Web communities for children – to ban or not to ban?' The context for the analysis of the collaborative online text, which follows, is the global emergence of social software like MySpace, Bebo and YouTube. In a short time young people all over the world have been discovering how to create their own web page or upload amateur video with the certainty of a large audience for their unedited offerings. Teachers have sometimes been casualties because their pupils have published damaging criticisms of their teaching and published embarrassing video of their practice in the classroom. For many schools, in

loco parentis, the dangers of their pupils attracting inappropriate adult contact were too high. The head teacher of a MirandaNet Fellow wanted to ban social software in schools. His request to members for advice within 24 hours was the impetus that provoked an online lengthy debate.

The debate was started by an ICT coordinator, Andrew. He was being pressured by his head teacher to stop the pupils using social software. The head had threatened to ban access to social software within 24 hours unless adequate evidence was supplied about the benefits to young people. As a member of the MirandaNet e-community, Andrew explained his dilemma to his peers online under the challenging headline 'Web communities for children – to ban or not to ban?' This headline helped to define the nature of the perceived threat and Andrew received a high volume of responses despite the short notice and the tight deadline. Responses appeared within the hour quickly pinpointed the challenges, the contradictions and the unknowns about this particular professional challenge and providing evidence both of benefits and challenges. Based on this evidence Andrew was able to develop a reasoned argument to present to the senior staff in the 24-hour timeframe. He reported that this collaborative response resulted in more understanding in the institution about the opportunities that the school could harness to increase learning achievement. Strategies for coping with the dangers were also devised within the school and shared with the fellowship.

This subject was of keen interest to many MirandaNet members who sympathised with the benefits that students derived from such an online community since the MirandaNet Fellowship also provided the same kind of community belonging. The majority of respondents did not support a ban – a result that would probably not be achieved in a general debate amongst teachers who had no experience of the benefits of this kind of software use. Even after the first flush of enthusiastic posting to meet the 24-hour deadline, the debate continued over the next four weeks. A variety of points of view were covered and colleagues in a similar position provided coping strategies. The arguments also covered the nature of young people's learning online and the schools' responsibility to encourage responsible web participation.

The text extracts are split into two parts below. In *Part 1: Participating in knowledge construction*, the responses of the participants are analysed. In *Part 2: facilitating the collaboration* extracts from the e-facilitators interventions in part two. The rules of grammar and punctuation do not apply online in a CoP and, therefore, the responses have been recorded as they were written. This preserves the spirit of the reply where some underlying messages are presented in the ways in which written conventions are broken.

5.2 *Part 1: participating in knowledge construction*

The 24-hour deadline for the first responses created a wave of immediate support and promises of more thought on the matter. Here is an example of the first rush of responses:

"I believe that the likes of Bebo and MySpace have a GREAT deal of potential for use in schools, but at the same time, YES, *I* have made the decision to 'restrict access' to them within school. It was ME who choose this course of action. Not a committee. No pressure from on high in school. I want to explain that decision in a more measured email, when I have time to compose such a thing (and I don't expect agreement from others on my chosen course of action). But as people who know me well, and who know my philosophy, will know, I was an earlyish user of think.com and have used Blogs, Wikis and other social software within my teaching for a number of years now."

Many of the members were keen to keep up with this unfolding story. They gave helpful advice about using the project as a practice based research opportunity to feed back into the community:

“Mark – do support your kids, but do get them to be open about what they are doing, record it (or get them to) and let us know. The learning value of a collaborative enquiry (students & staff) into this, no matter how small a project, would be of immense value to the students – and us.”

This kind of pragmatic approach increased during the six-week period, often informed by real examples. Warnings were backed up too, and requests for previous experience were detailed. Others employed humour to make a point:

“When you hear on the news today that a 3 year old has bought a £9000 car because his mother failed to log out of EBay properly you will probably laugh. There is a serious point here though. Children and young people are exposed to technology from such an early age that unless we both engage in and teach them safe behaviour from the word go we are being negligent.”

Different aspects of a growing challenge for teachers were offered from Australia, Freisland, China, Gambia, England, Northern Ireland and Wales. For example, a Chinese teacher replied with information that brought home the point that schools and families all over the world were being affected by this internet phenomenon. The Chinese had longer experience than the other nationalities that posted:

“I read very closely about this discussion and I think it is a problem not only here in UK but also in China. I have just heard a story about a father who killed his child because the child was so addicted to online games. In fact, whether children should be allowed to have access to online games, to establish their blogs was a very big debate in China in or around 2003.”

A few responses linked professional approaches to personal experience. For example, in a moving personal anecdote a teacher described how, as a parent, she was managing a daughter who was taking risks exploring these spaces:

“Very interesting this subject should arise now, my technology literate 13 yr old daughter has just joined it, I knew she was because she asked me how to convert a .tiff to a .jpeg and I asked her why - of course I wasn't supposed to see the images, but my eyesight is not that bad. Then one of my colleagues told me he'd received an invite to join her Facebox online friends – ah, not so tech savvy – she'd just invited everyone in her address book, forgetting that it contained the addresses of old fogies like me and him and her gran (!) so off I went.”

“Seems she's 17 and looking for love (the provocative poses in the pictures also make that clear), also belongs to a single parent family – her dad and I – did wonder which one of us she was planning to bump off – ah but then her worst experience was a 5 hr car journey with me and her favourite make of car is his – hmm clearer now.”

“She sensibly did not use her full real name, but did say which town she lived in and where she went to school (thinly disguised) – her listed friends, also school mates, have given full real names and the name of the school. (maybe someone will think it odd that this sexy 17 yr old seems to list a lot of 13 yr old boys in her friend's list?). She's already had comments on the images from a 19 yr old in Belfast and a 20 yr old in Doncaster. She put the site up on Sunday night.”

"My tactic so far – monitoring and a bit of testing her responses by putting an entry in her guest book from me as a 17 yr old boy... I need to know if she has really taken to heart *any* of my lectures on safety – and they wonder why I won't let them have Internet access in their bedrooms!"

"The 15 yr old has a Bebo site I found (they are not creative in their use of aliases) but she clearly prefers the real life dangers of going out on the town with her mates."

"At some point I will also talk to the school about how they tackle the issue....but it is, of course, a much, much wider than a school issue."

This story has been quoted in full for four reasons. Firstly the quotation indicates the length of posting that members are willing to compose. Secondly, engaging with the texts helps the reader of this research to understand some of the emotions that were aroused in the participants. Thirdly, the post is an indication of the levels of trust within the community who risk exposure of their feelings and thoughts. Fourthly this text demonstrates the dramatic writing skills of the participants. This teacher-parent reported that this opportunity to share her experience was helpful. She had followed up several personal responses to her dilemma. This indicates the spin-offs that occur when a debate of this kind takes place that might not be evident to a researcher who was a peripheral group member without access to all the complexities of the debate.

The high levels of response to this debate within the ECOP highlighted social software as a key professional challenge that had emerged very suddenly. Teachers had no clear guidance from senior managers or policymakers so this debate seemed to provide an important source of 'information exchange' and 'knowledge building'. This element of the debate became evident as participants returned to make an observation on what they were learning from responses to their own posts:

"Thanks for all those replies about my anxieties about letting children in my school use these sites. I was about to ban them all. The reason is that we have used Think.com for many years. This is which is so well managed and edited by the Oracle team that I was unaware of what can go wrong. Luckily I have also seen the benefits of VLEs in this guise and will not withdraw the facility."

"Now I have heard your thoughts. But I will take up some of the protective measures that have been suggested and get the parents and pupils involved in a debate about acceptable conduct."

If learning is associated with a change of thinking then this kind of comment provoked by the content of the debate indicates that some learning was happening.

5.3 Part 2: facilitating the collaboration

However, some members are not just learning themselves, but assisting the learning of their peers. These last extracts illustrate the role of the e-facilitators in the CoP. These are the members who either have a natural talent for e-facilitating the online debates and/or have attended a MN course on e-facilitation. These sophisticated practitioners are vital in maintaining the quality of an online debate. Many naive online learners and teachers are not yet aware of the importance of this role in any online group work. Some teachers also only see themselves in this role and do not encourage the students to try out their skills. In this debate one self appointed e-facilitator is trying to keep up the pace of the contributions:

“First of all, can I thank everyone who has made a contribution to this discussion? It has proved very interesting and informative, and perhaps has done something to move the topic forward. Please keep bringing them in.”

Other e-facilitators move the discussion on, refocus it or remind participants of the starting premise. Several of the members used their e-facilitation skills to move the discussion forward without in any way inhibiting the participants. Here is a representative exchange that illustrates how these confident and self-aware e-facilitators help the community towards new meaning making:

“This discussion has wandered a bit – from Andrew’s first consideration of ‘social software’ sites aimed at, or used by, teenagers – MySpace & Bebo particularly – to quite a few comments on ‘banning’.”

“You are right David.”

“And it’s something I was trying to do in my earlier posts – moving the focus a little from the banning debate to some of the positives of social networking.”

Another invaluable skill of the e-facilitators is to summarise what has been happening. This is useful for those who are just entering, those who want a new line to tackle and those who prefer reading the summary to reading all the posts. These summaries can be tackled from range of perspectives. The following contribution from an academic indicates the intellectual levels that can be drawn from the postings by an expert. This is an extract from four screens of commentary on the discussion. In fact it was a supportive text about how professionals might argue their point about digital technologies cogently from three perspectives fitting different audiences:

“I think we can extract three levels at which to pitch the arguments here:

- (1) A philosophical approach – here we engage in the debates regarding positive ‘freedoms’: *e.g.*, freedom of expression and freedom of (virtual) association; as against the negative ‘freedoms’.....
- (2) A ‘scenario’ or ‘hypothetical’ approach – this is surprisingly common in debates about new technologies. Broadly speaking proponents of this kind of argument indicate the worst that might happen with the new technology (often with moral outrage and hyperbole of speech), and demand (in their indignation) that there must therefore be a prohibition. In so doing they use the sledgehammer (of absolute morality) to hammer the nut (of a case study).....
- (3) A pragmatic approach, informed by real examples. By all means cite this school if it is helpful.....”

Andrew came back into the debate at the end with a summary of his school’s position that offered closure on the topic. There are a number of details in this account that will strike teachers who are in different circumstances. A key argument for Andrew is the problem that in a boarding school the staff is in *loco parentis* 24 hours a day:

“You will all want to know what happened. Well...you already know that the meeting went ahead as planned, and the decision has been made to present it as a PSHE issue [to pupils and staff]. . After that a decision will be made to ban or unban these sorts of websites. Although the feeling I get is that they will be banned. The view of the most of the HMC Schools’ IT group is to ban them. This could be due to the fact that we have to be responsible for the children’s behaviour 24 hours a day in term time.”

Andrew adds to the knowledge that has accumulated over the four weeks by providing a clear picture of the attitudes of all the staff and the parents who are obviously being involved closely in the decisions, which should be made. He also notes how an anecdotal image changes the mood:

“The interesting thing to note was how the discussion went and how the ‘established’ view is one that just concentrates on the negative aspects. “We ban sex, drugs and alcohol so why not ban this?” is a common viewpoint. Another point was “what benefit was there in these sorts of websites?”, and also “if they can access them at home in the holidays, what is the issue with banning them in school?”, another was “how are we going to police this?” When we visited the websites, the only thing that seemed of interest were the bad stuff, and we did come across a photos of a 14 year old girl draped over a snooker table in a bikini! (taken at her home not in school) Something that immediately set the tone for the rest of the discussion.”

Andrew also acknowledges the support he has received from MirandaNet members and from his head teacher who had had the benefit of the collaborative input from the Fellowship. But realistically Andrew points out that it may take two years to affect changes in attitudes about social software:

“I did introduce the facts you provided i.e. that there are websites which encourage good use of these websites in the UK we have <http://www.ceop.gov.uk/>. This did get a nod from one or two people who felt that we should bring someone in who is an expert in this field. Some people felt that we cannot stop this sort of thing happening in their own time, but we need to make sure that parents and pupils are aware of the dangers of putting up such photos on the web. The permanency being the main worry here. Another worry expressed was the photos that were online were of groups and did the other people in the group know that they were online?”

“Perhaps we are just starting here and it may take 2 years as another younger colleague stated before we can even approach the idea that this may actually be beneficial to the pupils. In other words lots of problems and no solutions. So, therefore, it is an impossible issue to solve so let us ban it! Fortunately the Headmaster seemed to feel that this was something important to the pupils and is sitting on the fence with this one. So he counteracted some of the arguments brought forward. I felt, however, that the whole issue was very closed and we tended to concentrate on the negatives without much thought for the positives. I am happy with the outcome, nevertheless. At least the pupils in my school will be made aware of the dangers and pitfalls in putting up all their details on a website.”

Lastly Andrew asks that if this information is to be used by members they will protect the school from publicity:

“I share my thoughts with the community, but obviously this is confidential information which I hope provides some insight into the thinking behind banning such websites, and will provide you with some insights.”

This trust is a key factor in the operation of MirandaNet online activities. The discussion looks at what has been discovered in terms of Salmons five steps: access and motivation, online socialisation, exchanging information, constructing knowledge and development. These are examined in the context of a mature CoP as defined by Wenger: domain of interest, community and shared practice.

6 Discussion

In the normal course of events it would be difficult for the MirandaNet professionals to derive so much information, so quickly, that is trustworthy. The alternative source of information on current topics would be drawn from the media, which by its very nature is suspect because of media agendas that tend to focus on moral panics. The range of members in the community tends to prevent extremes from surviving.

6.1 The range of perspectives in the 'community'

Wenger observes that online communication allow for the decoupling of issues of locality and globality from issues of authority. Wenger (1998) maintains that innovative solutions can emerge when connections between localities can by-pass hierarchical channels that impose the content and style of communication. This notion is illustrated in the ECoP text where researchers, teachers, governors, teachers as parents, developers and policymakers are all welcomed as authors.

Narratives about practice from many countries suggested to the ECoP that the challenges were not isolated in one region or continent. The moving personal story from England about a parent's sensitive attempt to cope with a wayward teenager, juxtaposed with the earlier Chinese observation about the killing of a child by its father for using social networks, indicates the shocking distance between human responses to the same problem. But it was clear that the Chinese contributor was as shocked as the rest of the CoP. This was not a national ailment.

MirandaNet online practice has been improved by a growing number of e-facilitators, who know how to e-facilitate a debate online. These e-facilitators with special skills are not in any way manipulating the debate, but simply guiding, supporting and encouraging. Some members have undertaken MirandaNet e-facilitator courses, which are also open to non-members. During the course members are required to join some online communities in order to draw on varied practical experience.

Some members already enjoy high levels of social intelligence in the area of encouraging the community to explore ideas, theories and practice (Goleman, 1996). These are usually senior Fellows with experience of online working, who have already been rewarded for a contribution to the resources. However, whenever a new member shows the same aptitude for e-facilitation they are encouraged immediately by being invited to share their skills in a publication, or in a seminar, blog or journal, in order to gain a Fellowship, which gives them status conferred by the group for participation. New kinds of Fellowship contributions are being explored so that conventional written essays and reports are not privileged, and members with other multimodal talents can be rewarded. E-facilitation courses help to add to the pool of e-facilitators who can take the debates deeper.

However, the technology is not always inclusive which is the next topic.

6.2 Steps 1 and 2: access, motivation and online socialisation

Understanding about the holistic ways in which MirandaNet members learn is severely limited by the nature of this textual extract because the text consists only of words. In the first place this discussion will look at the reasons from a technocentric point of view.

Secondly the discussion will look at the communication constraints on online discussion from the motivational and social point of view.

In technocentric terms the e-mail technology underpinning this rich communication is not now the only – or the best – way to construct collaborative meaning. But progression from e-mail listservs has proved problematic. As soon as the members are asked to move to a web-based forum many lose interest, and the pace of discussion falters. Most members still prefer the messages to drop into their mailbox for response. The web-based forum does inform members that a message has been added, but this still does not seem to be enough of a stimulus to reenter a discussion forum. Most members prefer the debate to be part of their e-mail workflow and stay subscribed on MirandaLink, even when there is a flurry of long messages, because they are accessing information that they cannot find in other media. For example, research findings about digital technology and learning are often hotly contested as soon as they are published. By sharing their knowledge about other reports, as well as local statistics, a group can quickly come to an opinion. Job offers are also followed up quickly as well.

Some Fellows are experimenting with the collaborative opportunities offered by wiki technology. But even the expert members cannot yet handle this technology with ease. For example, the pace of the debate in an experimental working group was interrupted when a wiki format was introduced, even though the members had high levels of computer competence. Whereas the wikis still focus on textual discourse, other MirandaNet scholars from China, England, Mexico and South Africa have been working together on joint concept maps and presentations on an interactive whiteboard, which are stored online as shared resources. This collective development of visual resources helps to transcend language and embraces Wenger *et al.*'s (2002) notions about the development of experts and mentors from within the CoP. Because access impacts on motivation these issues must be considered from a techno-centric view in an international CoP to ensure that members with older technology are not disenfranchised.

However this raises the second question in this discussion about the appropriate balance between technological restraints and the development of rich online debate and knowledge construction. In this paradigm, technological restrictions should not be permitted to dominate over the development of social intelligence online that the e-facilitators are trying to instil into ECoP practice (Goleman, 1996). A MirandaNet working group with access to high capacity, multi-media computers, and broadband is investigating how this kind of online debate might be deepened and broadened in the quality of its construction by the introduction of the next generation of digital tools. These virtual and face to face working groups provide an opportunity for 'socialisation', both on and off line, which has to be introduced into the Salmon steps to create a team spirit. This is an important element in online discussion although hard to identify in a research paper which restricts what can be demonstrated by its linear nature and word restriction. However, it is in this implicit knowledge, that members are agreed that increasing the richness of the debating opportunity must take precedence over installing new technologies that might exclude some members. This argument is advanced in the UK by the fact that all schools are expected to deploy a Virtual Learning Environment by 2008. If this happens web-based communication skills will improve through access to the technologies.

All these activities tend to include an element of online socialisation which is why this step in the Salmon model is included in this section. The next step is the information exchange, which comes from a desire to communicate socially. However, this also raises

a social problem for those who are less experienced in dealing intellectually with information overload. For example, the traffic was very high in this debate on social software. As a result some members, particularly new ones, unsubscribed for three reasons. One group un-subscribed for technical reasons: the restricted size of the mailboxes provided by their institution or because this kind of message was blocked. A second group seemed to feel significant distress in the handling of information overload. From the emotionally charged nature of their messages about unsubscribing, it was possible to deduce that they found deleting messages they do not want to read too difficult to handle. Their traditional training made them feel they must read every message. Ways of dealing with the overload were explained by the web editor. They were told to delete all messages without reading them if the title did not interest them, or to master message filtering. Although these teachers were feeling overwhelmed by the flow of messages they did not take the advice. They did not feel able to delete messages when they were busy, despite advice giving permission to do so. They found deleting what was not relevant emotionally distressing. These members preferred to leave the CoP rather than learn new strategies to cope with overload. This is a matter of concern as teachers need to be sufficiently proficient in understanding about information overload to support young learners in assessing what matters and what does not. Distress was not the only emotion. Two teachers were angered, even offended, by the volume of messages and demanded that members stopped posting. This was surprising when the nature of mirandalink as a democratic debating service had been explained when they joined. The passion which was giving rise to a fuller and deeper debate did not seem to please these two members who also unsubscribed. These are teachers who were not willing to move onto the personal step of information exchange.

6.3 Step 3: information exchange, the coverage of the 'domain of interest'

In the full debate the content of the comments was relevant to the full range of professionals in this field. There was pragmatic advice for teachers in classrooms, technical suggestions for controlling this phenomenon for network managers and ICT coordinators, suggestions for policymakers and senior managers and comments on the kinds of software available. Company developers offered advice on managing products and asked for development partners. The personal anecdotes added an ethical and an affective dimension which was helpful in placing digital technologies in the wider domain of interest that MirandaNet members see as their mission.

The domain of interest is, however, unavoidably restricted because expression of meaning is limited to the written word. Everyone in these debates tends to have a reasonable command of English. Many members with English as a second, third or fourth language do not post, although they are online. They have all been offered help to compose their replies if they do not wish to post a text, which has errors in it. The aim is, eventually, to adopt a VLE where sound and image can be used as well as webcasts and vodcasts for recording the voice modulation and body language that are important in interpreting meaning. However, as explained already, in this international community some members will be disenfranchised from the debate immediately, even if it is simply moved from the e-mail listserv to a web based forum. Broadband services in schools and homes that make good transmission of the internet possible, especially sound and image, are mostly only available in the West in schools. The situation is different

in many advantaged homes across the world where young people are communicating not only in text but in graphics, sound and animated video clips on mobile phones and home computers.

6.4 Step 4: evidence of 'shared practice' in knowledge construction

There is evidence throughout the selected text that several individuals were expressing changes in their attitudes to social software that had come about as a result of the information exchange. Individual summaries of the discussion, developed for different purposes, were evidence that individual members were acquiring new knowledge. This is expressed in messages, which demonstrate that they have changed their position or increased the complexity of what they understand. This new understanding by individuals is a crucial factor in influencing the next stage. The text from the debate shows how this rich, spontaneous learning is jointly recorded.

6.5 Step 5: beyond the development stage

In this extract Salmon's development stage is more deeply explored in terms of shared collaborative knowledge expressed in the creation of a series of collaborative artefacts. Members' reinterpretations of the online texts during and after their composition indicate the richness of these voluntary collaborative tasks. These school reports, news articles and policy documents referenced immediate knowledge construction by an expert group looking towards the unknown future. The fact that the collaborative text was used in so many ways suggests that members learnt in a constructive way to apply what they had learnt collaboratively. For instance, the results of this discussion were summarised by the ICT coordinator, both for the members' newsletter and also to provide further information to influence his senior management team.

6.6 Step 6: professional action

The learning in this new step is characterised in this online scenario by some members' pleas for meetings and action. Some actions were a result of a need to influence local situations in a professional mode. They referenced other debates in other forums on this topic where they had disseminated their new knowledge. Other members quoted similar debates in other CoPs to which they belonged. These were more focused on the software, the hardware or the training element in the subject of social software. They pursued these specialist interests more deeply in other forums where they knew that greater detail would be more welcome. However, they too benefited from the more comprehensive worldview offered by MirandaNet members.

More action which was motivated by the desire to influence policy resulted in an online forum and a working group were set up to research the issue in more depth, and to submit a proposal for funding to look more deeply into the subject. This debate was summarised by the activists as an agenda for a face-to-face meeting of an interested group. Finally, the opinions expressed in the meeting were summarised again in a funding bid to gain finance to subsidise those professionals who wanted to develop practice based projects investigating and evaluating children's uses of social community software. This was planned as a module of an ICT CPD programme, so that action would also have a professional reward.

Not only did they learn about the broader issues, but also how they might have an effect on their professional circumstances. For the teacher educator, these professionals' capacity to re-interpret the information for their own purposes as well as for the mission of MirandaNet indicates that some profound learning took place for some of the participants, who took their engagement to the next level – action. This relates closely to the characteristics of the active professional promoted by Sachs (2003). Is this the sixth step for professional online learners? This possibility has implications for the design of ICT CPD programmes, which is discussed in the conclusion.

The conclusion is split into two parts. Part 1 explores how the methodology has impacted on the findings and Part 2 describes a new theory of online learning, Braided Learning, which has been developed from the evidence.

7 Conclusions

The conclusion is in two parts; a discussion of emergent braided learning and a comment on the potential for further research.

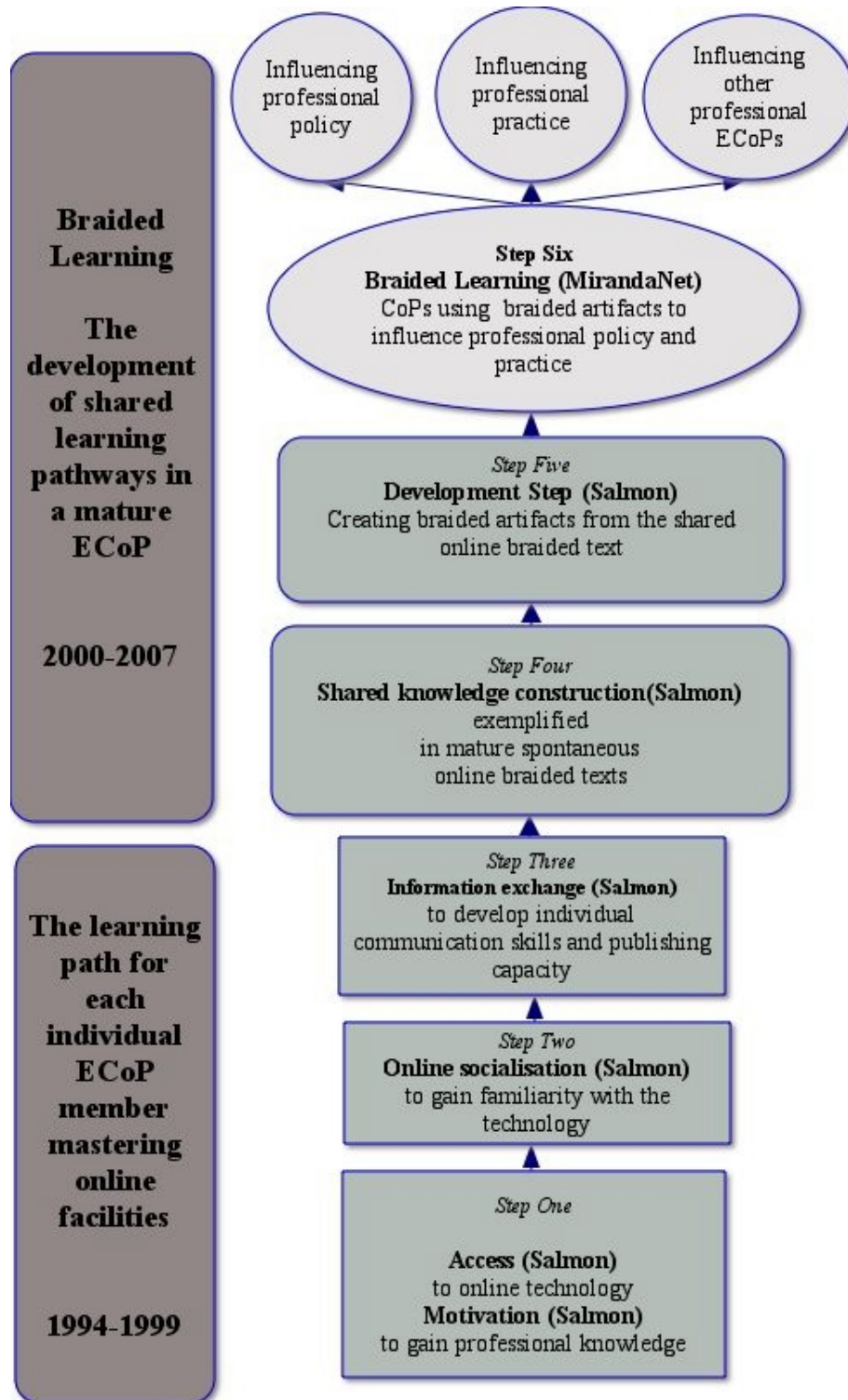
7.1 Part 1: braided learning, a step six theory and practice

A particular type of online learning can be identified in these findings, which I am calling Braided Learning. The metaphor comes from the craft of weaving. This metaphor helps the reader to visualise the way in which active professionals weave a collaborative online text together in which no single voice is privileged. It also refers to the shared learning processes taking place as the members of the CoP decide on actions that can emanate from the development of this joint artefact. A third element is how the members decide to use their new knowledge beyond the ECoP.

Figure 2 shows how these elements work together in time. Braided learning can be traced through six steps in the MirandaNet Fellowship, which extend the Salmon model in steps five and six. The right hand column shows how braided learning begins for the individual member of the MirandaNet ECoP after they have mastered the Salmon stages of access and motivation, online socialisation and information exchange. The publication at the end of this stage leads up to a Fellowship. At this point if they engage in online debate they engage in braided learning processes. However, the left hand column shows how the membership as a whole had to go through these stages as well from the first online work in 1994 to 1999. A more mature shared working began in 1999 when members began to work with one of the first VLEs, Oracle's Think.com. This opportunity to use a groundbreaking technology meant that a new understanding of online learning began to flourish in MirandaNet when the ECoP was building and extending traditional practices from 2000.

Digital technology began to provide a real alternative to face-to-face meetings and written reports by individuals. This kind of process can happen in a well run workshop or well chaired meeting- but the text does not belong to the attendees in the same way. Nor do they have time to think, contribute asynchronously and record their changes of mind over time.

Figure 2 Braided learning through the lens of time



For this full learning process to take place three braided components are required: the braided text, the braiders and the shared artefact which is used to influence groups outside the ECoP. The members use these jointly owned artefacts in a variety of guises to gain professional influence locally, nationally or globally. Some of the emergent characteristics of the braided text, the braiders and the shared braided artefact are listed here.

The braided text is created by the shared aim of the ECoP to produce a document that incorporates a range of perspectives as they are presented. Secondly, no effort is made by the learners to develop the kind of overall style that an official report or an academic research document would demand. Each voice in the CoP, therefore, is expressed in a unique style, which emerges from the quoted extracts. Thirdly, the document belongs to all the members, who are free to re-interpret and summarise the text for local, national and international purposes. There is no pressure to acknowledge the source of the learning.

The e-facilitators in this mature ECoP, are the braiders who braid or plait together the ideas of the contributors to create new knowledge in the domain of interest. Members might be trained to braid or not. Anyone can take this role. Indeed braided learning is taking place when a member alters an early posting to reflect what has already been expressed by other members or revises an opinion. Some members, on the other hand, take an active or passive role in the debate without engaging in the role of braiding which requires the capacity to stand outside the debate, to reflect on the process that is taking place and to alter the direction of the discussion by intervention.

Because of the presence of these mature e-facilitators nothing is edited by a moderator before it goes into the debate which happened in some ECoPs. The reason is that each member is trusted to make his or her own professional judgement on the subject matter and tone. Participants in the debate who are just following the braiding process and the braiders themselves will all have a different perspective on what is to be learnt from this document. As a result of the evidence collected in this paper Fellows will now gain a MirandaNet Braiders Award if by peer review they show how they have used a braided artefact to have influence in a professional situation.

There are many types of shared knowledge artefacts, which are drawn from the braided text. Summaries by individuals are stored in the dynamic knowledge base, which can be an e-journal or a digital gallery, wiki or collaborative blog. The unique element is that members can combine the same braided texts in a variety of ways for different purposes.

The purposes of the braided artefacts that result include an immediate influence on government policymakers, developers altering the design of digital technology products and educators impacting on school or regional learning strategies. This national and international influence depends on the full membership having immediate input to the online democratic debate. The speed of creation and the outreach of the braided text outputs with the authority of the group are greatly enhanced and enriched by the benefits of digital technologies.

What is unique about this form of online learning in a mature CoP is that the learning sometimes leads to the sixth step, which is professional action. This step depends on the learning stages, which Salmon has already identified. In the final analysis members create several reifications of the ECoP's view, which preserve knowledge whilst keeping it current. These many different kinds of thread become the basis of an ECoP tapestry of

histories and futures. This way of storing ideas as they emerge contrasts with reflexive reifications of more formal professional groups such as policies, curriculum, standards, roles, job descriptions, laws, histories and affiliations that appertain to an institution, and are usually in a prescribed style and structure. Wenger (1998) comments that there is always a danger that institutions can become 'frozen in reification' (p.243). A CoP, however, usually transcends institutional allegiances and can avoid the ossification of knowledge and wisdom because the artefact reflects current practice.

5.2 Further research

Braided learning is experienced differently by different learners depending whether the member is an observer, a contributor, an e-facilitator, a reinterpreter of the braided text – or one of a group of re-interpreters who are publishing new knowledge for the ECoP and taking action on what they have learnt. The next stage of research might be to investigate the learning of those who watch from the sidelines. The fact that they have joined the ECoP at all, and remain member, suggests that they are not passive learners, but keen to become involved with the professional learning of others and be part of a knowledge construction process. However, there is no evidence of their learning online, as there would be if they were debating in a classroom or required to submit proof of learning for an exam. The motivation for standing on the sidelines, often called 'lurking', might provide further understanding of how online learning differs from traditional learning in more subtle ways.

References

- Adler, P.A. and Adler, P. (1987) *Membership Roles in Field Research*, Newbury Park, CA: Sage.
- Charmaz, K. (2000) 'Grounded theory: objectivist and constructivist methods', in N.K. Denzin and Y.S. Lincoln (Eds.) *The Handbook of Qualitative Research*, 2nd ed., London: New Delhi, Sage.
- Cuthell, J.P. (2005) *Beyond Collaborative Learning: Communal Construction of Knowledge in an Online Environment*, INSTICC, Web Information Systems and Technologies, Miami.
- Elliott, J. (1991) *Action Research for Educational Change*, Buckingham: Open University Press.
- Glaser, B.G. and Strauss, A.L. (1967) *The Discovery of Grounded Theory: Strategies for Qualitative Research*, Chicago: Aldine.
- Goleman, D. (1996) *Emotional Intelligence: Why It can Matter More than IQ*, London: Bloomsbury.
- James, P. (1996) 'The transforming power of story-telling among peers: an exploration from action research', *Educational Action Research*, Vol. 4, No. 2, pp.197–220.
- Lamb, T. and Simpson, M. (2003) 'Escaping from the treadmill: practitioner research and professional autonomy', in N. Pachler and D. Allford (Eds.) *Language, Learning Journal*, Association for Language Learning, Rugby, Winter, pp.55–64.
- Lave, J. and Wenger, J. (1991) 'Situated learning: legitimate peripheral participation', *Learning in Doing: Social, Cognitive and Computational*, Cambridge University Press.
- Leask, M. (2002) *Training for Teachers and School Librarians in the Use of ICT*, Teacher Training Agency, London.
- MacGilchrist, M., Myers, K., et al. (1997) *The Intelligent School*, London: Paul Chapman.
- Preston, C. (1995) 'Not just a load of old Tosh', *The Times Higher Education Supplement*, London.

- Preston, C. (2005) 'The MirandaNet fellowship: a community of practice developing self-regulating learning environments for continuing professional development', *Self-regulated Learning in Technology Enhanced Learning Environments*, Lisbon: Shaker Verlag.
- Resta, P. (2002) *Information and Communication Technologies in Teacher Education: A Planning Guide*, United Nations Educational, Scientific and Cultural Organization – UNESCO.
- Sachs, J. (2003) *The Activist Teaching Profession*, Buckingham: Open University Press.
- Salmon, G. (2000) *E-moderating: The Key to Teaching and Learning Online*, London: Kogan Paul.
- Salmon, G. (2002) *E-tivities, The Key to Active Online Learning*, London: Kogan Page Limited.
- Saunders, L. (2002) 'Evidence-led professional creativity', *GTC/IOE Joint Conference*, Teachers on Teaching and Learning, London.
- Stuckey, B. (in press) 'Growing on-line communities of practice: conditions to support successful development of Internet-mediated communities of practice', Doctoral thesis, Research Centre for Interactive Learning Environments, University of Wollongong, Australia.
- Vries, S. and Kommers, P. (2004) 'Online knowledge communities: future trends and research issues', *Web Based Communities*, Vol. 1, No. 1, pp.109–122.
- Wenger, E. (2004) 'Learning for a small planet: a research agenda', www.ewenger.com/research.
- Wenger, E., McDermott, R., et al. (2002) *Cultivating Communities of Practice: A Guide to Managing Knowledge*, Boston: Harvard Business School Press.
- Wenger, R. (1998) *Communities of Practice: Learning, Meaning and Identity*, Cambridge: Cambridge University Press.
- Whitehead, J. (2006) 'Constructing living educational theories from action research with others in enquiries of the kind, "How do I improve what I am doing?"', *Braided Learning E-Journal*, MirandaNet Fellowship.
- Whitehead, J. and McNiff, J. (2006) *Action Research Living Theory*, London: Sage.